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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,679

03/25/2008

Thomas Lewin

1814

8883

20676

7590

03/24/2011

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EXAMINER

PELHAM, JOSEPH MOORE

ART UNIT

PAPER NUMBER

3742

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,679	<b>Applicant(s)</b> LEWIN, THOMAS	
	<b>Examiner</b> Joseph M. Pelham	<b>Art Unit</b> 3742	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/23/05</u> .   | 6) <input type="checkbox"/> Other: ____.                          |

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### ***Drawings***

The drawings are objected to under 37 CFR 1.83(a) because they fail to show sufficient detail of the region of contact between the “conductive devices” and the “furnace wall,” the locus of features evidently critical to the claimed invention, as described in the specification.

The Examiner suggests that a segment of the furnace to which a conductive device is attached be enlarged to clearly show both the cylindrical shape of the furnace and the narrowed region of the connection device, which is not currently shown.

The recited flows of heat energy can and should also be symbolically portrayed, since these too are evidently critical features.

Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 112***

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1, lines 12-14, and claim 8, lines 11-12, recite “heat... that corresponds substantially with...,” which is indefinite because “corresponds with the magnitude of heat” implicates a relationship but entails nothing about the nature of the relationship.

Claim 1, lines 14-16, and claim 8, lines 12-15, recite “the magnitude of heat that would have been transmitted... in the absence of said smaller cross-sectional area,” which is indefinite because this limitation refers to a hypothetical configuration which is not claimed, and which “magnitude,” moreover, depends on diverse structural and operational parameters which are not disclosed.

Claim 2 suffers the same deficiency; further, the claim recites “dimensioning the... devices...so that heat flow... [approximates] a heat flow... in the absence of... the dimensioning,” which is self-contradictory. Further, reference to “heat flow... in the

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absence of said current" is not understood, since, absent the current, the furnace would not be heated. Claim 9 is indefinite by reason of these same deficiencies.

Claim 6, lines 6-8, and claim 13, lines 5-7, recite "an energy balance between thermal flow from the furnace wall and thermal flow induced by current flowing through a current input device," which is indefinite because "thermal flow from the furnace wall" originates in joule heating in the walls, which is caused by current supplied by a "current input device," and "thermal flow from the furnace wall" is therefore *also* "induced by current flowing through a current input device," rendering this limitation ambiguous and thus indefinite.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6 and 8-13 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. 3974561.

Referring to Fig. 1 and col. 4, lines 8-28, '561 discloses a furnace 1 comprising current input and output "conductive devices" 5, 6 (claims 3, 5, 10, & 12) with rectangular cross-sections (claims 4 & 11) and "a smaller cross-sectional area than the remaining part," which are capable of generating joule heat at a rate equal to the rate at which heat would be conducted from the furnace into the devices without the narrowed section, *if the applied current is appropriately chosen* (and therefore meet this intended use limitation; claims 1 & 8), and one can also chose an appropriate current input level to ensure that the "smaller cross-sectional area regions" generate joule heat approximating the heat transmitted from the furnace into these regions from the furnace wall (also intended use; claims 6 & 13).

### ***Claim Rejections - 35 USC § 103***

Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over '561 in view of US Pat. 5239614.

The claims differ from '561 only in calling for a furnace composition of FeCrAl. Noting firstly that '561 contemplates temperatures of the resistively heated furnace tube of up to 1400° C, '614 discloses, at lines 28-37, at least that an FeCrAl resistive heater is suitable for temperatures of 1200° C; however, this upper limit is imposed by the process within the furnace of '614 and not by the heater construction. Since FeCrAl alloys are thus used as high temperature resistive heater materials, and are known to be suitable for temperatures well in excess of 1400° C, it would have been obvious to utilize such a furnace material, depending strictly on availability and cost, and the requirements of the particular thermal for which the furnace is intended.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph M. Pelham whose telephone number is 571-272-4786. The examiner can normally be reached on M-F 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on 571-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph M. Pelham/  
Primary Examiner, Art Unit 3742  
3/18/11